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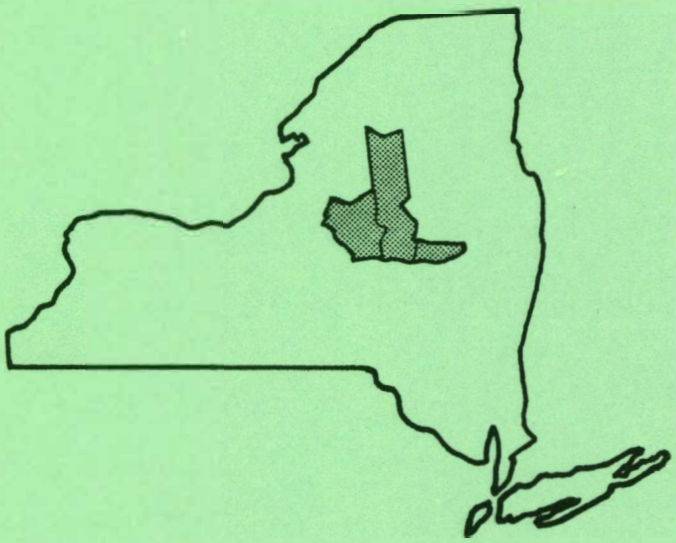
Forest Statistics for

NEW YORK

Forest District No. 8



Forest Statistics Series:
New York No. 8

Northeastern Forest Experiment Station

Upper Darby, Pennsylvania
Ralph W. Marquis, Director

1954

United States Department of Agriculture • Forest Service

FOREWORD

This is the eighth in a series of reports about forest areas and timber volumes in the State of New York. These reports are products of the forest survey of the Northeast, carried on by the Northeastern Forest Experiment Station as part of the nationwide forest survey being made by the Forest Service, U. S. Department of Agriculture.

A similar report has been prepared for each of the other forest districts in the State of New York. The primary purpose of these reports is to provide basic forest statistics for the administrative use of the New York Department of Conservation.

The New York Department of Conservation aided the Northeastern Station greatly in the forest survey of the State. The Department not only provided the aerial photographs used in the survey, but also cooperated in many other phases of the work.

Field work in Forest District No. 8 was supervised by N. B. Griswold. The statistical procedures for obtaining field-inventory data were developed by C. Allen Bickford. Computations were made under the supervision of Roland H. Ferguson.

Ralph W. Marquis

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Director

CONTENTS

	Page
GENERAL	1
Forest area	2
Ownership	2
Forest types	2
Forest stands	3
Timber volume	3
Blowdown damage	3
TABLES	
Land area	5
Commercial forest-land area	7
Timber volume	11
Average volume per acre	14
APPENDIX	
Definitions of terms	15
Forest-survey methods	17
Accuracy of the estimates	17
Species tallied	18

FOREST STATISTICS FOR NEW YORK FOREST DISTRICT NO. 8

Prepared by

Division of Forest Economics

Northeastern Forest Experiment Station
Forest Service, U.S. Dept. Agriculture

GENERAL

New York Forest District No. 8 lies in the central part of the State. From Oneida Lake on the west, it extends eastward to Amsterdam; from the Mohawk Valley it extends north into the Adirondack Park[1] almost as far as Cranberry Lake. It includes Herkimer, Montgomery, and Oneida Counties.

The topography of the land adjacent to the Mohawk Valley is gently to strongly sloping. Farther north, and in the Adirondack Park, it becomes rugged and mountainous. The western corner of the District contains some of the poorly drained areas of the Tug Hill Plateau. The drainage of the forest land area is varied. More than half of the District drains west into Lake Ontario; more than a third drains east into the Mohawk River. Only minor portions drain north into the St. Lawrence River and south into the Upper Susquehanna River.

[1] THE ADIRONDACK PARK AS SHOWN ON MAPS OF NEW YORK STATE INCLUDES BOTH STATE AND PRIVATE LANDS.

Agriculture is of most importance in the Mohawk Valley section. Dairy products, tree fruits, and vegetables are the principal crops. The rest of the District is of little agricultural value; much of it is in forests. Industrial development is confined to the same area as the farming.

Forest Area

The total land area amounts to nearly 2 million acres. Nearly half, 927,800 acres, is forest land. About 270,000 acres of the total forest-land area are reserved from timber cutting. Practically all of this is in the State Forest Preserve.[2] There is little, if any, forest land incapable of producing a commercial timber crop.

The remaining 657,800 acres are classed as commercial forest land. Herkimer County, the largest in the District, has nearly half of this acreage.

Ownership

About 92 percent of the commercial forest land is privately owned. Of this, farmers own one-fourth and industry and other private owners hold three-fourths. Of the forest land in public ownership, the State holds a little more than three-fourths as State Forests.[3] The remainder is held in municipal ownerships. County holdings are negligible.

Forest Types

The forests in the District are dominantly hardwood: 86 percent of the commercial forest land supports hardwood stands. The principal type is sugar maple-beech-yellow birch. Covering two-thirds of the forest land, it is one of the most valuable types.

The remainder of the area is divided among the aspen type (10 percent), spruce-fir types (9 percent), white pine types (5 percent), and other hardwood types (11 percent).

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[2] THE STATE FOREST PRESERVE COMPRISES LAND OWNED BY THE STATE IN THE 12 FOREST PRESERVE COUNTIES IN THE ADIRONDACKS AS DEFINED BY LAW.

[3] OUTSIDE THE LIMITS OF THE ADIRONDACK PARK AND NOT SUBJECT TO THE CONSTITUTIONAL PROHIBITION AGAINST CUTTING, WHICH APPLIES TO THE STATE FOREST PRESERVE LANDS.

Forest Stands

A little more than 52 percent of the commercial forest land is in sawtimber stands carrying more than 1,500 board feet per acre. However, only 19 percent of the forest area is in the heavier sawtimber stands of more than 5,000 board feet per acre. And this relatively small area bears more than half of the total board-foot volume.

Poletimber stands occupy more than a fifth of the commercial forest land. Seedling-and-sapling stands and other areas, bearing little or no growing stock, are found on a fourth of the commercial forest land.

Timber Volume

The commercial forests contain 1.9 billion board feet (log scale, International $\frac{1}{4}$-inch rule) of live sawtimber. Hardwoods make up 84 percent of the total volume; sugar maple, beech, and yellow birch alone account for 53 percent. The dominant softwood species, hemlock and spruce, represent only 15 percent of the total board-foot volume.

The growing stock amounts to 619 million cubic feet. Of this, 408 million are in sawtimber trees and 211 million are in poletimber trees. The total cubic volume is equivalent to 7.7 million rough standard cords.

Blowdown Damage

The survey was completed before the severe windstorm of November 25, 1950. The storm changed the stand-size distribution, the volume of timber, and the growing stock. While estimates of damage have been prepared from basic data provided by the New York State College of Forestry, the amount of damage has not been deducted from the accompanying tables since there is no satisfactory way of distributing the loss by forest type or species.

There are 342,700 acres of forest land on which there is some windthrown timber. Of this, about 148,500 acres are commercial forest land. The remaining 194,200 acres are in the State Forest Preserve.

Of the total blowdown area in the commercial forest land, about 98,400 acres had only a light windthrow, not enough to change the stand-size class of the stand. Heavier windthrow occurred on 50,100 acres, of which 47,600 acres

were in sawtimber stands and 2,500 acres in poletimber stands. Of the 47,600 acres in sawtimber stands, 14,200 acres were changed to poletimber and seedling-and-sapling stands.

There was a total loss of 209.3 million board feet (more than 11 percent of the total board-foot volume) of sawtimber on the commercial forest land. The volume of windthrown sawtimber in the sawtimber stands amounted to 205.1 million board feet. The volume in sawtimber stands is further reduced by the amount of standing timber on the 14,200 acres that changed from sawtimber stand-size classes to poletimber and seedling-and-sapling stands. Of the total growing stock, 59.1 million cubic feet (nearly 10 percent) were blown down.

NEW YORK FOREST DISTRICT NO. 8

Table 1.--Land area by major classes, 1950

Class of land[1]	Area	
	Acres	Percent
Forest land:		
Commercial	657,800	33
Noncommercial[2]	270,000	14
All forest land	927,800	47
Nonforest land	1,042,100	53
All land[3]	1,969,900	100

[1] See Appendix for definitions.

[2] Includes 296,336.94 acres in the State Forest Preserve and 300 acres of municipal forest land reserved from timber cutting. State ownership figures are as of September 30, 1952.

[3] Census of Agriculture, 1950. Water areas of 1 to 40 acres are included in the estimate of nonforest acreage.

NEW YORK FOREST DISTRICT NO. 8

Table 2.--Land area and commercial forest-land area by county, 1950

County	Land area	Commercial forest-land area	
	Acres	Acres	Percent
Herkimer	922,800	327,900	36
Montgomery	261,800	48,000	18
Oneida	785,300	281,900	36
All	1,969,900	657,800	33

NEW YORK FOREST DISTRICT NO. 8

Table 3.--Commercial forest-land area by ownership, 1950

Ownership class	Acreage held	
	Acres	Percent
Private:		
Farm forest land[1]	153,800	23
Other private	450,300	69
Total private	604,100	92
Public:		
State[2]	41,600	6
Municipal	9,500	2
County	2,600	(3/)
Total public	53,700	8
All ownerships	657,800	100

[1]Census of Agriculture, 1950.

[2]Includes commercial forest land administered by the New York State Conservation Department as State Forests amounting to 41,558.87 acres. All State ownership figures are as of September 30, 1952.

[3]Less than 1 percent.

NEW YORK FOREST DISTRICT NO. 8

Table 4.--Commercial forest-land area by forest type, 1950

Forest type	Area	
	Acres	Percent
Spruce-fir types	58,300	9
Hemlock and white pine types	31,000	5
Sugar maple-beech-yellow birch	426,000	65
Aspen	69,200	10
Hardwood-spruce-fir	33,400	5
Ash-elm-maple[1]	39,900	6
All types	657,800	100

[1]Includes small amounts of other hardwood types.

NEW YORK FOREST DISTRICT NO. 8

Table 5.--Commercial forest-land area by forest-type group and stand-size class, 1950

Forest-type group	Saw-timber stands	Pole-timber stands	Seedling-and-sapling stands and other areas	Total area
	Acres	Acres	Acres	Acres
Spruce-fir types	18,100	23,200	17,000	58,300
Sugar maple-beech-yellow birch	260,400	95,300	70,300	426,000
Other types	63,500	29,800	80,200	173,500
All types	342,000	148,300	167,500	657,800
Percent	52	23	25	100

NEW YORK FOREST DISTRICT NO. 8

Table 6.--Commercial forest-land area by stand-size class and watershed, 1950

Stand-size class	Watershed		Total
	Lake Ontario tributaries[1]	Mohawk River[2]	
	Acres	Acres	Acres
Sawtimber stands:			
More than 5,000 board feet per acre	75,600	52,700	128,300
1,500 to 5,000 board feet per acre	131,500	82,200	213,700
Poletimber stands:			
More than 600 cubic feet per acre	70,400	40,000	110,400
200 to 600 cubic feet per acre	23,000	14,900	37,900
Better stocked[3] seedling-and-sapling stands	59,400	38,800	98,200
Poorly stocked seedling-and-sapling stands and other areas	31,300	38,000	69,300
Total	391,200	266,600	657,800
Percent	59	41	100

[1]Includes the St. Lawrence River watershed (3 percent).

[2]Includes the Susquehanna River watershed (4 percent).

[3]40 percent or better.

NEW YORK FOREST DISTRICT NO. 8

Table 7.--Net volume of live timber on commercial forest land by species, 1950

Species	Growing stock[1]		Saw-timber[2]
	Thousand cu.ft.	Equivalent in cords	Thousand bd.ft.
Hemlock	47,900	598,800	148,700
Spruce	40,300	503,800	123,300
Fir	12,000	150,000	15,700
White pine	7,700	96,200	17,800
All softwoods	107,900	1,348,800	305,500
Sugar maple	118,400	1,480,000	388,100
Beech	81,900	1,023,700	329,800
Yellow birch	86,400	1,080,000	277,200
Red maple	92,000	1,150,000	177,800
Elm	40,400	505,000	158,000
Black cherry	29,000	362,500	92,300
Basswood	16,400	205,000	57,600
White ash	24,100	301,200	51,700
Aspen	14,600	182,500	9,400
Other hardwoods	8,300	103,800	26,300
All hardwoods	511,500	6,393,700	1,568,200
All species	619,400	7,742,500	1,873,700

[1]Includes sawtimber. Cord equivalent in rough standard cords is assumed to average 80 cubic feet of peeled wood.

[2]Log scale, International $\frac{1}{4}$-inch rule.

[3]Excludes the net volume of cull trees--9,200,000 cubic feet.

NEW YORK FOREST DISTRICT NO. 8

Table 8.--Net volume of live timber on commercial forest land by diameter class, 1950

Diameter class[1] (in inches at breast height)	Growing stock	Saw-timber
	Thousand cu.ft.	Thousand bd.ft.
Softwoods:		
6	16,500	--
8	17,400	--
10	17,600	65,700
12	18,200	74,200
14	12,800	55,600
16	7,300	30,400
18 +	18,100	79,600
All softwoods	107,900	305,500
Hardwoods:		
6	52,100	--
8	54,100	--
10	71,100	--
12	73,800	297,900
14	67,300	296,900
16	66,000	298,100
18	32,000	157,900
20	30,700	163,400
22	27,500	147,300
24	19,900	107,900
26 +	17,000	98,800
All hardwoods	511,500	1,568,200
Total	619,400	1,873,700

[1] The midpoint of each 2-inch diameter class is indicated.

NEW YORK FOREST DISTRICT NO. 8

Table 9.--Net volume of live timber on commercial forest land by forest type, 1950

Forest type	Growing stock		Saw-timber
	Thousand cu.ft.	Equivalent in cords	Thousand bd.ft.
Spruce-fir types	38,100	476,200	80,500
Hemlock and white pine types	28,700	358,800	72,100
Sugar maple-beech-yellow birch	451,100	5,638,800	1,448,400
Hardwood-spruce-fir	42,100	526,200	119,500
Ash-elm-maple	36,300	453,800	78,200
Other hardwood types	23,100	288,700	75,000
All types	619,400	7,742,500	1,873,700

Table 10.--Average net volume of live timber per acre of commercial forest land, by stand-size class, 1950

Stand-size class (and acreage of each class)	Growing stock	Sawtimber
	Cubic feet	Board feet
Sawtimber stands:		
More than 5,000 bd.ft. per acre (128,300 acres)	2,100	8,500
1,500 to 5,000 bd.ft. per acre (213,700 acres)	1,200	3,000
Poletimber stands:		
More than 600 cu.ft. per acre (110,400 acres)	700	600
200 to 600 cu.ft. per acre (37,900 acres)	300	600
Other[1] (167,500 acres)	100	300
Average, all classes[2] (657,800 acres)	900	2,800

[1]Includes seedling-and-sapling stands and non-stocked areas.

[2]Hardwoods constitute 84 percent of the total board-foot volume or 83 percent of the total cubic-foot volume in all stand-size classes. The average cubic volume in all stand-size classes is equivalent to 12 cords per acre.

APPENDIX

DEFINITIONS OF TERMS

Forest Areas

Forest-land area.--Includes (a) lands that are at least 10 percent stocked by trees of any size and capable of producing timber or other wood products, or of exerting influence on the climate or on the water regime; (b) land from which the trees described in (a) have been removed to less than 10 percent stocking and which has not been developed for other use; and (c) afforested areas. (Forest tracts of less than 1 acre, isolated strips of timber less than 120 feet wide, and abandoned fields and pastures not yet 10 percent stocked are excluded.)

Commercial forest-land area.--Forest land that is (a) producing, or physically capable of producing, usable crops of wood (usually sawtimber), (b) economically available now or prospectively, and (c) not withdrawn from timber utilization.

Noncommercial forest-land area.--Forest land (a) withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as commercial forest land, and (b) incapable of yielding usable wood products (usually sawtimber) because of adverse site conditions.

Forest Types

Forest types are classified according to the species or species group that accounts for the major portion of the stand in terms of cubic feet in sawtimber and poletimber stands, or the number of stems in seedling-and-sapling stands.

Stand-Size Classes

Sawtimber stands.--Stands with sawtimber trees having a minimum net volume per acre of 1,500 board feet, International $\frac{1}{4}$-inch rule.

Poletimber stands.--Stands failing to meet the sawtimber stand specification, but at least 10 percent stocked with poletimber and larger (5.0 inches and larger) trees, and with at least half the minimum stocking in poletimber trees. (Poletimber stands carry at least 200 cubic feet per acre.)

Seedling-and-sapling stands.--Stands not qualifying as either sawtimber or poletimber stands, but having at least 10 percent stocking of trees of commercial species and with at least half the minimum stocking in seedling-and-sapling trees.

Other areas.--Forest-land areas not qualifying as sawtimber, poletimber, or seedling-and-sapling stands. (Includes nonstocked areas.)

Tree Classes

Sawtimber trees.--Trees of commercial species that contain at least one merchantable sawlog as defined by regional practice and that are of the following minimum diameters at breast height (d.b.h.): Softwoods 9.0 inches and hardwoods 11.0 inches. (All butt sawlogs are considered merchantable. Where the butt is defective, upper sawlogs are considered merchantable if they account--in terms of aggregate net volume--for 50 percent or more of the gross volume below the top of the uppermost sawlog. Softwood sawlogs are at least 6.0 inches in diameter inside bark at small end; 8 to 16 feet in length; sound and straight enough to be manufactured into standard lumber. The smaller logs are generally free of surface defects other than small tight knots. Hardwood sawlogs are at least 8.0 inches in diameter inside bark at small end; 8 to 16 feet in length; suitable for sawing into standard lumber, construction timbers, or ties.)

Poletimber trees.--Trees 5.0 inches d.b.h. and larger of commercial species that do not meet the specifications for sawtimber trees but do meet regional specifications of species, soundness, and freedom from defect. (These are the trees that are straight and clear enough to make sawtimber trees eventually.)

Seedling-and-sapling trees.--Trees of commercial species less than 5.0 inches in diameter at breast height.

Cull trees.--Live trees of sawtimber or poletimber size that are unmerchantable for sawlogs now or prospectively because of defect, rot, or species.

Timber Volume

Growing stock.--Net volume, in cubic feet, of live sawtimber trees and live poletimber trees from stump to a minimum 4.0-inch top (of central stem) inside bark.

This volume is also given in rough standard cords (bark included). Cord volume is derived from growing stock by applying a factor of 80 cubic feet per cord.

Live sawtimber volume.--Net volume in board feet, International $\frac{1}{4}$-inch rule, of live sawtimber trees.

FOREST-SURVEY METHODS

These forest statistics are based on information gathered from aerial photographs and from sample plots examined on the ground.

First, photo-interpretation plots were marked off on the aerial photographs. These plots were distributed uniformly by mechanical means over photographs of the entire district. Trained photo-interpreters then classified each photo-plot as either forest or nonforest. Forest plots were classified further according to stand-size and forest type.

Field crews inspected some of the photo-plots on the ground. Enough plots were selected at random so as to attain a specified level of statistical accuracy. Species and volume data were collected on these ground plots; and the photo classification of stand size and forest type was verified or--if necessary--changed.

The survey was designed for maximum efficiency in estimating total cubic volume to meet the national standards of accuracy.

ACCURACY OF THE ESTIMATES

The estimates in this report may contain two kinds of error. First, photo-interpreters may make mistakes of judgment and fieldmen may make mistakes in measuring or record-

ing. There is no practical way of finding out just how often such errors occur. But they are kept to a minimum by closely checking all phases of the work.

The second kind of error is associated with sampling procedures. The size of this sampling error can be measured. In Forest District No. 8 the probabilities are 2 out of 3 that the actual forest area is within ± 4.0 percent of the estimated forest area, that the actual cubic-foot volume is within ± 6.8 percent of the estimated cubic-foot volume, and that the actual board-foot volume is within ± 9.6 percent of the estimated board-foot volume. This does not include any mistakes in measurement or classification.

These percentages show that the area estimates are more accurate than the volume estimates, and that the cubic-foot estimates are more accurate than the board-foot estimates.

In each of the tables, the total figures are more accurate than the subtotals. The subtotals are more accurate than any of the individual figures. Figures that are small in relation to totals are subject to larger sampling errors.

SPECIES TALLIED

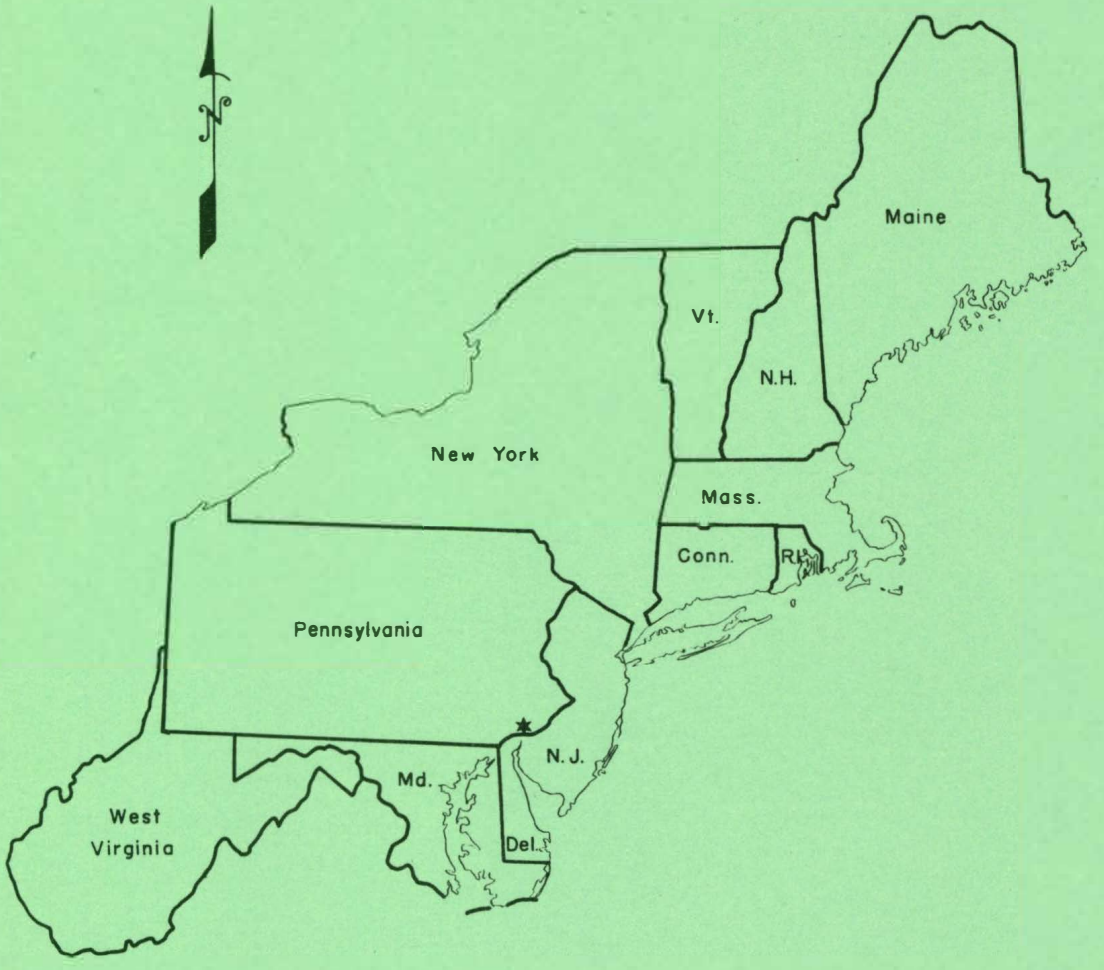
The various commercial tree species tallied in New York Forest District No. 8 are listed below. Approved common names[4] are shown in parentheses if these differ from the brief name used in the tables. Other tree species may occur in the area, but unless they were tallied on the field plots they were not included in the following list.

Softwoods

Hemlock (Eastern hemlock)	– Tsuga canadensis
Spruce (Red spruce)	– Picea rubens
Fir (Balsam fir)	– Abies balsamea
White pine (Eastern white pine)	– Pinus strobus

[4] LITTLE, ELBERT L. JR. CHECK LIST OF NATIVE AND NATURALIZED TREES OF THE UNITED STATES (INCLUDING ALASKA). U. S. DEPT. AGR., AGR. HANDB. 41. 472 PP. 1953.

Sugar maple	- Acer saccharum
Beech (American beech)	- Fagus grandifolia
Yellow birch (Yellow birch)	- Betula alleghaniensis
(Sweet birch)	- Betula lenta
Red maple	- Acer rubrum
Elm	- Ulmus species
Black cherry	- Prunus serotina
Basswood (American basswood)	- Tilia americana
White ash	- Fraxinus americana
Aspen (Bigtooth aspen)	- Populus grandidentata
(Quaking aspen)	- Populus tremuloides
Other hardwoods	
(Paper birch)	- Betula papyrifera
(Black willow)	- Salix nigra
(Northern red oak)	- Quercus rubra
(White oak)	- Quercus alba
(Hickory)	- Carya species



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